



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,411	08/01/2003	Parvathanathan Subrahmanya	020133	4378

23696 7590 06/19/2006

QUALCOMM, INC
5775 MOREHOUSE DR.
SAN DIEGO, CA 92121

EXAMINER

DOAN, KIET M

ART UNIT

PAPER NUMBER

2617

DATE MAILED: 06/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/632,411

Applicant(s)

SUBRAHMANYA,
PARVATHANATHAN

Examiner

Kiet Doan

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is response to Remarks file on 04/12/2006.

Response to Arguments

Applicant's arguments filed 04/12/2006 have been fully considered but they are not persuasive.

In response to applicant's argument that referent fails to disclose "determining one or more coefficients of the pilot filter base on the determined velocity of the wireless communication device".

Examiner respectfully disagrees, in Kubo reference teaches "determining one or more coefficients of the pilot filter base on the determined velocity of the wireless communication device" (C7, L9-31, Fig.10, Illustrate No.243 moving average filter means as or read on pilot filter where determined velocity of the wireless communication device using TPC command from mobile and to make more clear C5, L52-67, C6, L33-67 teach method of estimate/determine moving speed/velocity and further C9, L24-67, C10, L1-10, L36-67, Fig.17, Illustrate calculator unit No.281 which read on coefficients of the pilot filter).

Therefore, examiner interpreted "determining one or more coefficients of the pilot filter base on the determined velocity of the wireless communication device" as broadest reasonable interpretation and it is proper.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2617

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

1. **Claim 1** is rejected under 35 U.S.C. 102(e) as being anticipated by Kubo et al. (Patent No. 6,249,682).

Consider **claim 1**, Kubo teaches a method of adapting a pilot filter that processes received signals in a wireless communication network, the method comprising: determining a velocity of a wireless communication device in relation to a wireless network infrastructure (Title, Abstract, C2, L11-31, C4, L1-15, and teach estimate/determining velocity mobile station), and determining one or more coefficients of the pilot filter based on the determined velocity of the wireless communication device (C7, L9-31, Fig.10, Illustrate No.243 moving average filter means as pilot filter determined velocity of the wireless communication device).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 2-9, 20, 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (Patent No. 6,249,682) in view of Akiyama (Patent No. 6,907,026).

Consider **claims 2-5**, Kubo teaches the limitation of claim as discuss **but fail to teach** a method as defined in claim 1, wherein determining the velocity of the wireless

communication device and determining the one or more coefficients are performed in the wireless communication device/network infrastructure.

In an analogous art, Akiyama teaches "Receiving apparatus for signal transmission system of orthogonal frequency division multiplexing type". Further, Akiyama teaches a method as defined in claim 1, wherein determining the velocity of the wireless communication device and determining the one or more coefficients are performed in the wireless communication device/network infrastructure (C4, L36-51, C11, 37-67, C12, L1-35, Fig.6, Illustrate one or more coefficients are performed in the wireless communication device).

Therefore, it would have been obvious at the time that the invention was made that person having ordinary skill in the art to modify Kubo and Akiyama system, such that determining the velocity of the wireless communication device and determining the one or more coefficients are performed in the wireless communication device to provide means for calculated the velocity/speed wireless communication device.

Consider **claim 6**, Akiyama teaches a method as defined in claim 1, further comprising applying the one or more coefficients to a pilot filter (C6, L1-48, C8, L3-19).

Consider **claims 7 and 8**, Akiyama teaches a method as defined in claim 6, wherein applying the coefficients is performed in the wireless communication device/network infrastructure (Fig.1, Illustrate No.11 and No.12 wherein applying the coefficients is performed).

Consider **claims 9, 20, and 30**, a method as defined in claim 1, wherein determining the velocity further comprises receiving velocity information from a global positioning system receiver (Official notice using GPS to determined velocity/speed is well know in the art).

3. Claims 10-12,15-19, 21, 24-29, 31, 36-38, 40-42, 44-46, 49-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (Patent No. 6,249,682) in view of Akiyama (Patent No. 6,907,026) and further view of Corbett et al. (Patent No. 6,351,642).

Consider **claims 10, 21 and 31**, Kubo and Akiyama teaches the limitation of claims as discuss above **but fail to teach** a method as defined in Claim 1, wherein determining the velocity further comprises receiving at least two location measurements of the wireless communication device, wherein the measurements are made at different, known, times, and determining the velocity of the wireless communication device is based on the at least two location measurements and their respective measurement times.

In an analogous art, Corbett teaches "CDMA soft hand-off". Further, Corbett teaches a method as defined in Claim 1, wherein determining the velocity further comprises receiving at least two location measurements of the wireless communication device, wherein the measurements are made at different, known, times, and determining the velocity of the wireless communication device is based on the at least

Art Unit: 2617

two location measurements and their respective measurement times (C4, L56-67, C5, L1-25, Fig.2, Illustrate step calculation velocity and measurement are made).

Therefore, it would have been obvious at the time that the invention was made that person having ordinary skill in the art to modify Kubo, Akiyama and Corbett system, such that measurements are made at different, known, times, and determining the velocity of the wireless communication device to provides means for accurate speed/velocity location where about the mobile device are travel.

Consider **claims 11, 36, 40 and 44**, Corbett teaches a method as defined in claim 1, wherein the wireless network infrastructure further comprises a base station (C4, L1-8, Fig.1, No.110).

Consider **claims 12, 17, 25, 37, 41, 45**, Akiyama teaches a method as defined in claim 1, wherein determining the one or more coefficients further comprises determining the one or more coefficients based on a noise power estimate (C11, L51-67, C12, L1-17).

Consider **claims 15, 18 and 28**, Akiyama teaches a method as defined in claim 1, wherein determining the one or more coefficients further includes selecting the one or more coefficients from a set of predetermined coefficients (C8, L3-19).

Consider **claim 16**, Akiyama teaches a communication device comprising: a pilot filter that receives pilot signal samples over a communication channel (C6, L1-21); and

Art Unit: 2617

a controller that determines filter coefficients of the pilot filter based on the wireless communication device velocity and adapts the pilot filter to the communication channel (C8, L11-16, Fig.1, Illustrate No.18 as controller that determines filter coefficients)

Consider **claims 19 and 29**, Akiyama teaches a communication device as defined in claim 18, wherein the predetermined coefficients are retrieved from a look up table (C11, L10-27, Fig.4 Illustrate as a look up table).

Consider **claims 24 and 49**, Akiyama teaches a communication device comprising: a plurality of pilot filters each of which is configured to receive a pilot signal and to output a filtered pilot signal; and a controller configured to select one of the plurality of pilot filter outputs based on the wireless communication device velocity (C6, L22-65).

Consider **claim 26**, Akiyama teaches a communication device as defined in claim 24, wherein the plurality of filters are configured to be adapted by changing filter coefficients (C6, L22-65).

Consider **claim 27**, Akiyama teaches a communication device as defined in claim 26, wherein the controller determines filter coefficients for the plurality of pilot filters based on the communication device velocity (C12, L63-67, C13, L15-20).

Consider **claims 38, 42 and 46**, Kubo teaches a wireless communication system as defined in claim 35, wherein the signals received from the mobile wireless communication device include an estimate of the mobile wireless communication device velocity (Abstract, C2, L12-29).

Consider **claim 50**, Akiyama teaches a method as defined in Claim 1, wherein the one or more coefficients vary with an increase in the velocity, and the one or more coefficients vary with a decrease in the determined velocity (C1, L60-67, C2, 15-29, Fig.1, Illustrate No.11 and No.12)

Consider **claim 51**, Akiyama teaches a method as defined in Claim 1, wherein: the pilot filter receives a plurality of pilot symbols; and each symbol of the plurality is multiple by the at least one of the one or more coefficients (C3, L25-40).

Consider **claims 52, 53** Akiyama teaches a method as defined in Claim 1, wherein the coefficients are select to adapt the pilot filter to a communication channel having an optimal performance (C3, L25-40, C6, L1-22).

Consider **claim 54**, Akiyama teaches a communication device as defined in claim 16, further comprising a receiver which is configure to: receive a modulated signal comprising a pilot signal and a traffic signal; equalize the modulated signal; produce

data from the equalized signal comprising the pilot samples (C1, L15-59, C6, L1-22, teach modulation signal).

4. Claims 35, 39, 43, are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama (Patent No. 6,907,026) in view of Corbett et al. (Patent No. 6,351,642).

Consider **claims 35 and 39**, Akiyama teaches a wireless communication system comprising: at least one mobile wireless communication device with a pilot filter that is configured to accept coefficients that adapt the operation of the filter to a communication channel response; and an infrastructure device configured to communicate with the at least one mobile wireless communication device (C7, L9-31).

Corbett teaches wherein the infrastructure device receives signals from the mobile wireless communication device and based on those signals determines pilot filter coefficients and transmits the coefficients to the mobile wireless communication device for use in configuring the pilot filter (C4, L1-67, Fig. 1, Illustrate mobile station No.120 and contain pilot channel and Fig.2 Illustrate step of calculated to the mobile wireless communication device)

Therefore, it would have been obvious at the time that the invention was made that person having ordinary skill in the art to modify Akiyama and Corbett system, such that at least one mobile wireless communication device with a pilot filter that is configured to accept coefficients that adapt the operation of the filter to a communication channel response; and an infrastructure device configured to communicate with the at least one mobile wireless communication device for use in

Art Unit: 2617

configuring the pilot filter, to provide means for controlling communication by using filtering.

Consider **claim 43**, Corbett teaches a wireless communication system comprising: at least one mobile wireless communication device; and an infrastructure device with a pilot filter configured to receive a signal transmitted from the mobile wireless communication device over a communication channel and to accept coefficients that adapt the response of the filter, wherein the infrastructure device receives signals from the mobile wireless communication device (C4, L 8-67, C5, L1-12, teach mobile station scans for pilot channel from base station).

Akiyama teaches and, based on those signals, a set of coefficients that are provided to the pilot filter are determined (C6, L23-65, C8, L3-19).

Therefore, it would have been obvious at the time that the invention was made that person having ordinary skill in the art to modify Corbett and Akiyama system, such that mobile wireless communication device and an infrastructure device with a pilot filter configured to receive a signal transmitted from the mobile wireless communication device over a communication channel and based on those signals, a set of coefficients that are provided to the pilot filter are determined to provide means for calculates the signal and correct position of mobile wireless communication device.

5. Claim 13-14, 22-23, 32-34 and 47-48, 50-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (Patent No. 6,249,682) in view of Agazzi et al.

Art Unit: 2617

(Pub. No. 2001/0000219).

Consider **claims 13-14, 22-23, 32-34 and 47-48**, Kubo teach the limitation of claims as discuss above **but fail to teach** a method as defined in claim 1, wherein the pilot filter is a finite/ infinite impulse response filter.

In an analogous art, Agazzi teaches "Demodulator for a multi-pair gigabit transceiver". Further, Agazzi teaches a method as defined in claim 1, wherein the pilot filter is a finite/ infinite impulse response filter (Paragraph [0006], [0066-0070].

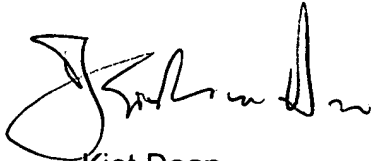
Therefore, it would have been obvious at the time that the invention was made that person having ordinary skill in the art to modify Kubo and Agazzi system, such that the pilot filter is a finite/ infinite impulse response filter, to provide means for controlling the limit velocity.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiet Doan whose telephone number is 571-272-7863. The examiner can normally be reached on 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Kiet Doan
Patent Examiner



GEORGE ENG
SUPERVISORY PATENT EXAMINER